## Carleton University

Dept. of Systems and Computer Engineering

Systems and Simulations—SYSC 3600

Homework #5

Dr. Ramy Gohary

- 1. Derive the transfer function  $E_o(s)/E_i(s)$  for the following operational-amplifier circuits.
- 2. Assuming zero initial conditions, what is the system output for the following input signals:
  - $e_i(t) = 10\cos(2000\pi t)u(t)$
  - $e_i(t) = e^{-5t} \sin(1000\pi t + \pi/4)u(t)$

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Figure 1: Operational Amplifier Circuits